Technological and Cultural Aspects of Virtual Space as a Medium

New Media, Innovation and Research
Katie Board
16/05/2005

In discussions about hyper-realistic environments it seems easy to become trapped by various conventions that are cross-literally defined, interlinked or overlapping. Virtual space, virtual environment, virtual reality, and cyberspace are all terms that involve analysis within their own definitions but which equally share a common ground, *virtual spaces*. Virtual space, in this essay, will be used flexibly to describe virtual environments or cyberspace within the context of new media arts. It will be analysed as a medium which re-mediates older forms of media and uses its own means of representation and communication. From that perspective it will be looked at how a sense of space is created 'behind' the screen and what this means in terms of virtual awareness of viewers. According to Lister "a medium is seldom treated as something in itself", taking cultural, social and technological aspects into consideration.[1] The exploration of the use of digital technologies for the purpose of a medium and the evaluation of the virtual spaces it supports will be of main interest. Within this context, the first section will look at the key functions of digital technologies as a tool, how they support a medium, rather than being labelled or defined as a medium. Building from ideas in section 1, section 2 will examine how a virtual space becomes a medium in a social and cultural sense. This will support the overall argument of the cultural use of a virtual space-medium through the use of digital technologies.

Digital Technologies as a Supporting Tool

The term 'medium' itself can be critically examined in terms of how a culture utilises it as a communication tool and how it is defined when considering the role of digital technologies. The role of technology in new media art is often a central point of discussion among theorists and raises some interesting questions about the development of a medium. Based on the argument of media theorist Marshall McLuhan,

[1] Martin Lister; [et al.], *New Media: A Critical Introduction*, (London: Routledge, 2003), Pg 297.

a medium can be seen as a type of technology, in other words, the technology itself will determine in what ways it will be used socially as a medium. Not satisfied with this definition, Raymond Williams argues, "a medium is a particular use of a technology," or, technologies will be shaped to meet the social needs of communication and expression.[2] Williams considers the important cultural and social changes when determining the role of technology in a medium, contrary to McLuhan who has been criticised for ignoring this key factor to a large extent.[3] Although he left out an important aspect when examining the concept of 'medium,' there may have been some truth to his argument. New media art is characterised as 'digital' and 'virtual,' which means there are two facets to consider. Firstly, new media art exists in various forms, for example: installation and animation works, Internet and software art, digital video and audio, and virtual reality, to name a few. It can be said that these forms are all created on the "digital platform, from production to presentation."[4] In this case, McLuhan's argument about technology as a medium is sound in that the artwork can only be produced with the use of technology and its final outcome is the product of the digital technology. However, there is a problem here that Williams is keen to address. It deals with the communication and expression of the work, which could be considered as the 'virtuality' of new media art. Using an example from *Digital Art* by Christiane Paul, an installation is created completely on a digital platform, from start to finish, but it's goal is to create an 'environment' that allows for different levels of immersion.[5] Installation is not the only form of new media art that aims to create a digital environment, rather a virtual space, where the user can interact with and create his or her own meaning from their personalised experience with the work. The virtual space that is created within a digital

[2] Martin Lister; [et al.], *New Media: A Critical Introduction*, (London: Routledge, 2003), Pg 83.
[3] Martin Lister; [et al.], *New Media: A Critical Introduction*, (London: Routledge, 2003), Pg 80.
[4] Christiane Paul, *Digital Art*, (London: Thames and Hudson Ltd., 2003), Pg 67.
[5] Christiane Paul, *Digital Art*, (London: Thames and Hudson Ltd., 2003), Pg 71.

environment is the means in which new media art can be expressed, communicated, and experienced. Older forms of media, for example books, create a 'virtual space' of their own in a sense, but it differs from new media in terms of interactivity and the creation of meaning. Only virtual space is capable of providing a navigable space, "a key factor in new media aesthetics" that allows users to explore meaning in different contexts.[6] Referring back to Williams's argument, the virtual space here is a result of how culture has conformed digital technologies to meet its needs of communication.

Another interesting point of view is Lev Manovich's claim that virtual space becomes an actual media type: "Just as other media types – audio, video, stills, and text - it can now be instantly transmitted, stored, and retrieved; compressed, reformatted, streamed, filtered, computed, programmed, and interacted with."[7] This idea implies that space becomes a technology and a medium at the same time. In other words, what he is stating is that virtual space is reduced to bits and bytes enabling it to be transmitted, computed, and programmed. Lister also puts this idea in context by suggesting that dematerialised media can now be "compressed into very small spaces, and accessed at very high speeds."[8] Also, according to Jeffery Shaw, the terms virtual reality and cyberspace are used to "describe the technologies which allow a heightened degree of viewer immersion."[9] These arguments combine the technology and the 'concept' of medium, to create a space that is reliant on the technology for existence. On the other hand it is argued by architect Peter Anders, that virtual space does not actually exist and what we believe to be 'space' is merely a mental process, "an extension of

[6] Janet H Murray, *Hamlet on the Holodeck*. (Cambridge: MIT Press, 1997), Pg 79.
[7] Lev Manovich, *The Language of New Media*, (Cambridge; MIT Press, 2001), Pg. 251.
[8] Martin Lister; [et al.], *New Media: A Critical introduction*, (London: Routledge, 2003), Pg 16.
[9] Jeffrey Shaw, 'Modalities of Interactivity and Virtuality', in *Multimedia: From Wagner to Virtual Reality*, Packer, Randall; Jordan, Ken, (eds), (New York: W.W Norton & Company, 1992), Pg. 135.

consciousness."[10] In this case, cyberspace or virtual space is about the senses, and creating the sense of space that lies beyond the computer or monitor screen is up to the user. Sensualisation can be seen as a key factor in virtual environments and the direction where future technologies will most likely progress. Perceptualised data has evolved into sensualised technologies over decades, leading to a common belief that a virtual environment is a "technological management of the body's senses."[11] Furthermore, it could be argued that a virtual space is not a true space. While it may be accurate to say that the purpose of a virtual environment is directed at sensualising an experience, claiming that virtual space is non-existent is ignoring the fundamental construct of the space in the first place. The space behind the computer screen, even if it is blank still exists as mathematical data, or calculations which are already in place ready to be executed. Virtual space as a medium must rely on the technologies that create the structure of the space, and the use of that space will be determined socially.

Florian Brody recognises our task to be "to overcome the limitations of an old medium by means of a new medium – by changing not the technology but the concepts."[12] The basic model of communication can be understood as: Transmitter → Message → Receiver or (Encoder → Message → Decoder).[13] Communication is the basic concept of any medium, and Brody could be suggesting that as a culture, we have the ability to change the way we communicate, and that ability comes from the emergence of new digital technologies. Similar to Williams view, he is arguing that technologies act as a tool to allow for cultural changes in communication and changes or transformations in a medium. Art has always been influenced by the

[10] Christiane Paul, *Digital Art*, (London: Thames and Hudson Ltd., 2003), Pg 95.
[11] Martin Lister; [et al.], *New Media: A Critical Introduction*, (London: Routledge, 2003), Pg 122.
[12] Florian Brody, 'The Medium is the Memory', in *The Digital Dialectic: New Essays on New Media*, Peter Lunenfeld, (ed), (Cambridge: MIT Press, 2000), Pg. 148.
[13] Jean Baudrillard, ' Requiem for the Media', in *The New Media Reader*, Noah Wardrip-Fruin and Nick Montfort, (eds), (Cambridge: MIT Press, 1981), Pg. 284.

most current technologies and relies on the available (and even nearly available) cultural resources as a tool for production and expression. Similarly, any medium will rely on and build upon pre-existing and established forms of media.[14] Film and photography have been reinvented through the evolving of mechanical technology into digital technology and then have been reinvented through use of computer technology. Some will argue that the computer is a medium in itself; however, the computer was initially developed to support mathematical capacities, not to create a space-medium that is interactive and immersive.[15] The computer and its capabilities to present an immersive space-medium, now and in the future, has been and will be a result of how a culture has transformed and made use of the technology to support a changing medium, from an inactive to an interactive one. The 'newness' of the virtual space medium is now apparent as the digital environment becomes responsive to user- input, and the interactivity and navigation capabilities of digital art in this space allow for a new meaning-making process, a new communication. This virtual space has to be understood to rely on a mix of technologies as it is constructed and maintained through them. But it is critical to understand that the space as a medium is not a direct result of the technology, but how a culture has used it as a tool to refashion the concept of 'medium.'

Virtual Space as a Medium

Space as a medium can be thought of in terms of how it enables communication between ourselves, and our environment. Because space is not a physical, tangible object, it is considered to be a completely "mental image created to organize and

[14] Martin Lister; [et al.], *New Media: A Critical Introduction*, (London: Routledge, 2003), Pg 124.
[15] Janet H Murray, *Hamlet on the Holodeck*. (Cambridge: MIT Press, 1997), Pg 79.

manage information."[16] There are generally two theories in art history that describe the types of space in art: Haptic and Optic; or systematic and aggregate. Haptic (aggregate) describes space in relation to a particular object or entity in that space. In other words, it is impossible to represent space if there are no objects to relate it to. Optic, (systematic) space refers to the "unification of objects in a spatial continuum"[17], or, that the representation of space occurs only when objects in the space are united in some way. Here, it can be argued that virtual spaces are generally aggregate spaces, in the sense that separate objects are placed over a background and each has its own boundary, therefore, no real unification between the objects and background exists.[18] This argument can also go in the direction that there cannot be a representation of the 'space' in a digital environment until the artist creates it, by filling it with objects. However, the systematic perception will argue against this representation of space and say it is not a 'true-space' because the objects have no real unification. Manovich's view of virtual space follows the aggregate perception in that:

> The space of the Web, in principle, cannot be thought of as a coherent totality: It is, rather, a collection of numerous files, hyperlinked but without any overall perspective to unite them. The same holds for actual 3-D spaces.[19]

He goes on to explain how a file for a 3-D 'scene' contains a range of separate objects and graphics that are created on a polygonal model. Here, he is referring back to the technological aspect of virtual space; files, hyperlinks, coordinate based modelling. These objects do exist in a virtual space, however they are transparent to the viewer. The 'files' are not what is meant to be mediated, rather the resulting message of the information contained in the file. The relationship of the objects and graphics may not have any particular unification in the file itself, but when represented in virtual space,

---

[16] Peter Anders, *Envisioning Cyberspace: Designing 3D Electronic Spaces*, (New York: McGraw-Hill, 1999), Pg. 17.
[17] Lev Manovich, *The Language of New Media*, (Cambridge; MIT Press, 2001), Pg. 254.
[18] Lev Manovich, *The Language of New Media*, (Cambridge; MIT Press, 2001), Pg. 255.
[19] Lev Manovich, *The Language of New Media*, (Cambridge; MIT Press, 2001), Pg. 255.

they come together to convey a message and the over-all message is a unifier in a sense. Space in the physical world can be argued on the same level. It consists of separate objects, which may or may not relate to each other, where one can navigate and communicate through the space and create their own meaning through interaction with the objects. Again, it is a medium in a social and cultural sense where "space and its objects mediate our externalised thought to ourselves and to others."[20]

As stated before, any medium will make use of previously existing forms of media, and may transform or remediate them in some way. Considering this, virtual space is a place for multimedia. It has refashioned older forms of media – from print, radio, film and video – by re-contextualizing and embedding them into a digital environment; creating a new space for interaction and communication. Virtual space provides "greater immediacy", and it's own "self-authenticating experience."[21] This is made possible by providing a new way to create meaning and experience digital art. It has extended the possibilities of experience in older forms of media through non-linear interaction, perhaps one that would not be possible in the physical world. Navigation is the key to this experience as it provides users the ability to move around a space, and ultimately to "restructure fact, knowledge, and myth" by interacting with a narrative that the artist presents.[22] Digital environments provide artists new methods to communicate with the viewer, and allow them to "extend the spatial identity of the artwork, not just in terms of the structure of the image itself, but also in terms of a space of interaction

[20] Peter Anders, *Envisioning Cyberspace: Designing 3D Electronic Spaces*, (New York: McGraw-Hill, 1999), Pg. 21.
[21] Jay David Bolter and Richard Gruisin, (eds), *Remediation- Understanding New Media*, (Cambridge: MIT Press, 2000), Pg. 165.
[22] Florian Brody, 'The Medium is the Memory', in *The Digital Dialectic: New Essays on New Media*, Peter Lunenfeld, (ed), (Cambridge: MIT Press, 2000), Pg. 145.

between the image and the spectator."[23] The artist now has to consider how the viewer will create meaning through the work. For example, some artists may want the viewer to interact on such a level that he or she actually induces a change to the work, resulting in the user becoming the artist. On another level, artist's can loose control over a meaning he or she wanted to convey because digital environments are interactive to an extent that the user can navigate a narrative in an unintended way. The artist is now making two transitions: the first one is from an old medium to a new medium; a mental space to an interactive space. The second is from conveying a message to a viewer to engaging the message with a participant; an inactive viewer to an interactive participant. Rather than remain outside the creation process, the viewer is now invited to interact with an artwork, within the environment the artist has created as a space for communication and meaning.[24]

An online documentary, *The Wrong Crowd, by* Debra Beattie, will be used to take this idea further. The story is about her life, growing up in Queensland during the 1970s, during the protests and police brutality – Brisbane as a "battleground."[25] Online documentary is a refashioned form of the traditional documentary film, whereas, the concept of documentary is the same, but the way of communicating it, or the medium, has changed. For her project, she has created a space in a digital environment that houses a range of information, including the main 'documentary' footage (in QuickTime format), storyboards, notes from each scene, and a place to add your own story. She calls The Wrong Crowd an "immersive cinematic experience." [26] This is because rather

---

[23] Jeffrey Shaw, 'Modalities of Interactivity and Virtuality', in *Multimedia: From Wagner to Virtual Reality*, Randall Packer and Ken Jordan, (eds), (New York: W.W Norton & Company, 1992), Pg. 133.
[24] Pierre Levy, 'The Art and Architecture of Cyberspace', in *Multimedia: From Wagner to Virtual Reality*, Randall Packer and Ken Jordan, (eds), (New York: W.W Norton & Company, 1994), Pg. 370.
[25] See *The Wrong Crowd*, http://www.abc.net.au/wrongcrowd/.
[26] See *The Wrong Crowd*, http://www.abc.net.au/wrongcrowd/.

than presenting a linear form of documentary, one in which the 'viewer' is only capable of reading a narrative from start to end, she presents a non-linear work, giving the 'participant' navigational control to move through and restructure the narrative. The participant has the ability to start at the end of the narrative and move backwards towards the intended beginning, or he/she has the capability to decide where the story or meaning starts and ends, for him/her. When you enter the main space where the QuickTime movies are embedded, Beattie has laid out her narrative in four headlined sections: Childhood, Adolescence, Young Adulthood, and Epilogue. Each scene is dated and titled which gives an indication of where the narrative is intended to start and end. The user can skip from scene to scene, or skip scenes all together. Every user will create a different meaning and have a different experience because each will navigate the narrative in a completely different way.

Aspects of authenticity can be addressed when discussing a meaning-making process within any form of documentary or medium that represents a historical time, but especially within new media art. Two aspects of authenticity in regards to *The Wrong Crowd* deal with the option to add your own story, and the digital platform itself as a tool for production. When thinking about the option that Beattie gives users to 'add your own story', one might consider how the story, or history, will change if it includes the stories of other users, and how the meaning of her original work will change as a result. Here, Beattie might loose control of her work by allowing other users to change her story with their own. This could be true to the extent that some viewers may disagree with her point of view, or the way she represents history, and therefore may rewrite her version of history. In contrast though, the addition of several different versions of the described events may ultimately support historical truth in that it is told from various points of view. In addition, new media art such as an online documentary, raises questions about authenticity because it is created on a digital platform. Digitality provides several options

to manipulate images and meaning, to alter reality. An artist such as Beattie has the ability to digitally modify the images she uses to represent history, and in this sense it is impossible to authenticate the material and content of the work. However, this is an aesthetic of new media art; it supports new narrative possibilities that support several possible stories.[27] In doing this work, Beattie invited users to come in and create their own meaning, by interacting and engaging themselves with the content. In a virtual space, it can and has been argued that the definition of authenticity is transformed to deal with the experience of the user, rather than the reality of the content. Because virtual space is aimed at creating an expressive, sensual (even if not yet fully sensualised) environment of communication, authenticity can now be defined as the real, emotional experience of the user. This can be argued on the basis that a person's senses are perhaps the only 'real' factor in a virtual space. Bolter and Grusin, in their book Remediation: Understanding New Media, argue that a virtual space created to simulate a high place such as a balcony looking down onto the street below, and used to treat patients with a fear of height has indeed evoked panic symptoms such as sweaty palms and weak knees.[28] In a virtual space, what we see on the screen are digital objects that are representations of 'physically' real objects. The digital objects are immaterial, 'virtually' real in their own right, but only exist as bits and bytes stored within a computer. When we try to define what is authentic in virtual space, we have to consider what is real. In this case, we are considering the human mind; the sensualised experience. This refers to the introductive idea that Anders is expressing when he argues that space exists as a completely mental image.

---

[27] Janet H. Murray, *Hamlet on the Holodeck*. (Cambridge: MIT Press, 1997), Pg 162.
[28] Jay David Bolter and Richard Gruisin, (eds), *Remediation- Understanding New Media*, (Cambridge: MIT Press, 2000). Pg. 163.

Overall, the future of virtual space will likely head into the direction of sensualisation. The creation of an interactive, immersive environment was the first aim of the virtual space-medium and the progressive advancement of digital technologies will allow artists in the future to implement ideas to evoke greater sensualised experiences from users. Lister argues that it is a future promise of "full sensory immersion" in virtual space, and also the fusion of virtual space and Virtual Reality, into one fully connected space-medium.[29] Furthermore, theorists believe that digital technologies will merge and intersect with biotechnology, neuroscience, and nanotechnology, and in doing this, artists will have the resources, (the technological capabilities), to create fully sensualised environments.[30] Another future development for the space-medium will be through multi-modal interfaces. Because virtual space is such a fluid (changing) medium, due to progressive developments in digital technologies, it will travel freely from internet to mobile phones, PDA's, and other devices.[31] Art and artists have always used the cultural resources that were available to them as a means of production and communication. New technologies are a cultural resource that is continuously changing such as a culture does, and something that artists critically examine as a tool for expression. The way new media art has re-mediated older media forms is a key example of how art reflects cultural changes. New media art as we know it today might soon become a cultural realisation of change, of expression, of refashioning the past, the present and the now, an ultimate sensualised virtual reality.

[29] Martin Lister; [et al.], *New Media: A Critical Introduction*, (London: Routledge, 2003), Pg 36.
[30] Christiane Paul, *Digital Art*, (London: Thames and Hudson Ltd., 2003), Pg 214.
[31] Christiane Paul, *Digital Art*, (London: Thames and Hudson Ltd., 2003), Pg 124.

Bibliography

Anders, Peter, (1999), *Envisioning Cyberspace: Designing 3D Electronic Spaces*, New York: McGraw-Hill.

Baudrillard, Jean, (1981), ' Requiem for the Media', in *The New Media Reader*, Noah Wardrip-Fruin and Nick Montfort, (eds), Cambridge: MIT Press.

Bolter, Jay David and Richard Gruisin, (eds), (2000), *Remediation- Understanding New Media*, Cambridge: MIT Press.

Brody, Florian, (2000), 'The Medium is the Memory', in *The Digital Dialectic: New Essays on New Media*, Peter Lunenfeld, (ed), Cambridge: MIT Press.

Levy, Pierre, (1994), 'The Art and Architecture of Cyberspace', in *Multimedia: From Wagner to Virtual Reality*, Randall Packer and Ken Jordan, (eds), New York: W.W Norton & Company.

Lister, Martin; [et al.], (2003), *New Media: A Critical Introduction*, London: Routledge.

Paul, Christiane, (2003), *Digital Art*, London: Thames and Hudson Ltd.

Murray, Janet H, (1997), *Hamlet on the Holodeck*. Cambridge: MIT Press.

Manovich, Lev, (2001), *The Language of New Media*, Cambridge; MIT Press.

Shaw, Jeffrey, (1992), 'Modalities of Interactivity and Virtuality', in *Multimedia: From Wagner to Virtual Reality*, Randall Packer and Ken Jordan, (eds), New York: W.W Norton & Company.

The Wrong Crowd, [on-line], 2005. http://www.abc.net.au/wrongcrowd, (15/05/2005).